

Doernum

VANDERBILT UNIVERSITY
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DEPARTMENT OF BIOLOGY

Nov, 25, 1945

Joshua Lederberg, A/S, V-12, U.S.N.R.
c/o Dr. Francis J. Ryan,
Dept. of Zoology,
Columbia University,
New York 27, N. Y.

Dear Mr. Lederberg:

You wrote recently asking about analyses of *Neurospora* mycelium. I have assayed only two samples, one of wild type (no. 1-A), and the other of no. 35304-A. The latter is a lysineless mutant at temperatures above 29° but at lower temperatures it regularly adapts to growing without lysine. The wild type mycelium was prepared as follows: grown with aeration in carboy, filtered off on a Buchner funnel, washed with distilled water and again filtered off, then dried at 85-95° after wringing as dry as possible in cheesecloth. This was hydrolysed by refluxing 24 hrs. with HCl and most of the acid was removed by distilling off under vacuum, the remaining acid neutralized with KOH.

The mycelium of 35304 was prepared in the same manner. It was grown in the absence of extracellular lysine at 25°. Results on wild type mycelium gave, in two trials, 2.25% lysine and 2.46% lysine. Assays of 35304 gave 2.53% lysine and 2.52% lysine.

2.25
2.46
2.53
2.52

The only other information which might be of interest to you concerns the relative amounts of growth obtained from a given amount of lysine by other lysineless mutants. These results are selected from tests with 28 lysineless mutants. Each mutant was tested at five concentrations of lysine, using one flask at each lysine level except at the level of 0.876 mg lysine per culture. Here duplicates were used. All were tested simultaneously. The curves were drawn, and from these the amount of growth (in mg. dry weight) from 0.876 mg. of lysine is given below. This was retested on another occasion with a smaller number of strains and shown to be reproducible within reasonable limits.

Strain no. 4545 ----- 46.1mg. dry weight
Strain no. 23944 ----- 35.0 mg. dry weight
Strain no. 37101 ----- 27.7 mg. dry weight
Strain no. 39707 - - - 48.2 mg. dry weight.

From these results there appears to be considerable difference in the efficiency of lysine utilization in the different lysineless strains. Incidentally, from other evidence, the first three strains appear to be of different genetic types. No. 39707 has not been tested for its genetic type.

I hope this information will be of use to you. I shall send you a reprint when they arrive here.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "A. H. Doermann".

A. H. Doermann